

CLAIMS

1. A process for separating zeolite crystals from aqueous environments containing them in suspension, which comprises:

5 (a) treating this suspension with an acid up to a pH ranging from 3 to 8;

(b) subjecting the resulting mixture to filtration or decanting to isolate the zeolite crystals.

10 2. A process according to claim 1 for recovering zeolite crystals in suspension in the crystallization mother liquor which comprises:

(a) treating this suspension with an acid up to a pH ranging from 3 to 8;

15 (b) subjecting the resulting mixture to filtration or decanting to isolate the zeolite crystals.

3. A process according to claim 1 or 2 for recovering zeolite crystals in suspension in the crystallization mother liquor containing zeolite preparation reagents not transformed into crystalline phase during the synthesis hydrothermal treatment, which comprises:

20 (a) treating this suspension with an acid up to a pH ranging from 3 to 8;

25 (b) subjecting the resulting mixture to

filtration or decanting to isolate the zeolite crystals, in a mixture with oxides deriving from said reagents.

4. A process according to any of the previous claims
5 which comprises:

(a) treating the suspension with an acid and with a material selected from a clay, an oxide or a precursor of an oxide capable of generating the oxide by hydrolysis;

10 (b) subjecting the resulting mixture to filtration or decanting to isolate the zeolite crystals, in a mixture with the oxide.

5. The process according to any of the previous claims, wherein the acid is added by means of a
15 precursor capable of contemporaneously generating said acid and ligand by hydrolysis.

6. The process according to any of the previous claims, wherein the pH ranges from 3 to 6.

7. The process according to any of the previous
20 claims, wherein the acid is selected from acetic acid, hydrochloric acid, nitric acid, formic acid, propionic acid and oxalic acid.

8. The process according to claim 4, wherein the oxide is selected from silica, silica-alumina, alumina.

25 9. The process according to claim 4, wherein the

precursor of the oxide is selected from aluminum acetylacetone, alkylaluminates and/or alkylsilicates.

10. The process according to claim 5, wherein the precursor which contemporaneously generates acid and 5 the oxide is selected from $\text{Al}(\text{NO}_3)_3$, $\text{Al}(\text{SO}_4)_3$, silicic acid, silicon or aluminum halides, $\text{Al}(\text{CH}_3\text{COO})_3$.

11. A process for preparing zeolitic catalysts in acid or ammonia form which comprises:

10 (a) treating the suspension of zeolite crystals in the crystallization mother liquor containing them with an aqueous solution of acid up to a pH ranging from 3 to 8;

15 (b) subjecting the resulting mixture to decanting or filtration to separate the zeolite crystals;

(c) drying;

(d) calcination;

(e) effecting an ionic exchange in an aqueous solution containing an acid or ammonium salt;

20 (f) separating the zeolite by means of filtration or decanting and subjecting it to washing;

(g) drying;

(h) calcination to remove the ammonium ion, when the exchange has been carried out with an ammonium salt and the acid form is required.

25 12. A process for preparing zeolitic catalysts in acid

form, wherein the zeolite is characterized by a tridimensional large or extra-large pore system, comprising the following steps:

- (a) treating the suspension of zeolite crystals in the crystallization mother liquor containing them with an acid up to a pH ranging from 3 to 8;
- 5 (b) subjecting the resulting mixture to decanting or filtration to separate the zeolite crystals;
- (c) exchanging the zeolite with an aqueous solution containing an acid or ammonium salt;
- 10 (d) separating the zeolite by filtration or decanting;
- (e) drying;
- (f) calcination to remove the residual templating agent and ammonium ion, when the exchange has been carried out with an ammonium salt.

13. The process according to claims 11 or 12, wherein the crystallization mother liquor contains zeolite preparation reagents not transformed into crystalline phase during the synthesis hydrothermal treatment.

20 14. The process according to claims 11 or 12, wherein a material is added in step (a), selected from a clay, an oxide or an oxide precursor capable of generating the oxide by hydrolysis.

15. The process according to claims 11 or 12, wherein 25 the acid is added in step (a), by means of a precursor

capable of contemporaneously generating said acid and an oxide by hydrolysis.

16. A process for preparing zeolitic catalysts in extruded form, which comprises subjecting to extrusion, 5 the zeolitic catalysts obtained with the process according to any of the claims from 11 to 15, optionally in a mixture with a ligand.